

# **VOICE BOX II**

## **for ATARI**



a product of

**the ALIEN Group**

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## Users Instructions

### What it Does

The VOICE BOX and its programs lets your Atari computer sing. It is designed for an Atari 400 or 800 computer with at least 32k of memory, an Atari Basic cartridge and an 810 disk drive.

It is a little black box that plugs into the serial port of the disk or interface unit. No other connections need be made, as the speech output is routed back through the computer to your T.V. set.

Programs are included with the VOICE BOX which let you:

- Type in sentences in English or phonetic code and immediately hear them spoken.
- Store words or phrases, complete with intonation, in special files which can be used by other programs to which you are adding speech.
- Generate random sentences using words of your own choosing.
- Redraw the animated face which moves its lips in synchronization with the speech.
- Play the word spelling game where the VOICE BOX speaks a word and you spell it.
- Replay or embellish the many short songs pre-recorded at the factory.
- Program in your own songs with three voice accompaniment using a method which you can easily learn even if you have had no musical training.
- Add speech or singing to other programs written in Atari Basic.
- Run a short demonstration (on the voice box disk).

BEFORE EXPERIMENTING WITH THE PROGRAMS YOU SHOULD MAKE A BACKUP COPY OF THE DISKS.

### How to use the VOICE BOX

1. Plug the voice box into the last free extension of the serial port. The Atari disk and Interface units each have two serial port plugs. One goes to the computer and the other goes to the next device. If you have a program recorder, (which would normally be the last in the chain), you must unplug it and connect the voice box in its place.
2. Plug in your Atari Basic cartridge.
3. Insert the ALIEN disk with the smooth side uppermost.
4. Switch on the power. If the power was already on, you must turn it off and on again by opening and closing the cartridge door. This causes a program on the disk called AUTORUN.SYS to load the Basic speaking program.

After about twenty seconds a list of commands should appear on the screen, and if your T.V. volume was turned up, you should hear the plea "PLEASE TEACH ME TO SPEAK."

At this point you may type in words, and when you hit RETURN hear them spoken. If, like most computerists, you prefer to learn by doing, then you should go ahead and experiment. I shall wait here until you need me.



Try typing:

\*M

This should retrieve the command menu. If it doesn't, then you should re-boot.  
(Power off and on.)

The main purpose of this program is to create pronouncing dictionaries which you can save for later use. These dictionaries, which can store hundreds or even thousands of words can be used by other programs which speak.

### Phonemes and Phonetic Spelling

The native language of the VOICE BOX is phonemes. These are the elementary speech sounds of which English uses some sixty four. A list of these, together with a word that incorporates each one, is given in the appendix. The phoneme lists, one for vowels and one for consonants, can also be seen by typing the commands:

\*V

and \*C

If you type in a word using ordinary English spelling, the VOICE BOX will do its best to pronounce it. It looks up the word in the dictionary, and if it can't find it, interprets each letter as a phoneme. If, for example, you type in the word:

SCENE

The VOICE BOX will say SKENEEM.

(By the way, you can at any time hit RETURN on an empty line to hear something repeated.)

This is obviously wrong. In the first place, the 'C' should be silent. The first E should be a long 'E,' and the second 'E' should be silent.

You can get it to pronounce the word correctly by typing:

S-E-N

Now comes the best bit. If this pronunciation seems correct to you, you can type in:

S-E-N = SCENE

—and the next time you type 'SCENE' it will say it right.

Try typing in:

HI

What did it say!?

Listen again.

It said a lot more than 'HI.' You can now use another little feature of the program and see the phonetic spelling of what you have just heard. Type:

\*PP

These twenty one symbols separated by hyphens are a mixture of phoneme codes, (H, AH1, Y etc.), and intonation codes, (6, 7, 4, 5, 0). This is the form in which you might enter speech. Note that these can all be freely mixed with English spelling and the VOICE BOX will usually sort them out. The hyphens are optional but they prevent any possible ambiguities.

I shall now talk quietly to myself while you experiment a little with phonetic spelling.

★ ★ ★ ★ ★

Probably one of the first things you noticed was that many English vowels are in fact compounds or two or more phonemes. The appendix lists seven of these.

Certain long vowels can be made to sound more natural (to an American ear at least), by adding in the very short phonemes UH3, EH3 and I3.

e.g.:

L-AE1-EH3-F = LAUGH  
H-AE1-J3-NG-ER = HANGER  
G-AHI-UH3-T = GOT  
G-AE1-EH3-S-S = GAS

## Emphasis and Intonation

Try typing in this:

I LOVE YOU

You probably find this rather unconvincing.

The first thing you can do is speed it up a little. Type in:

\* +

Hit RETURN again, (to repeat) and it should sound less disconnected, but still mechanical.

Here are some other ways which sound different:

AH-715 LOVE YOU

(Even if no one else does)

I LOVE 7 YOU 0

LOVE, too,  
(as opposed to 'hate')

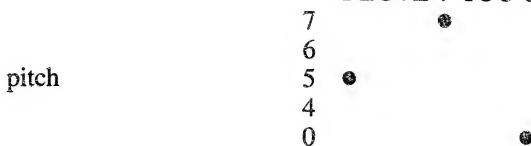
U LOVE 6 YOU & U-0

(not your sister)

What are those numbers?

The numbers 0, 4, 5, 6, 7, 8, 9 control the pitch over a range of six semitones. (About plus or minus 18%). Pitch changes are made smoothly e.g.:

I LOVE 7 YOU LO



It is often necessary to place a pitch breakpoint in the middle of a word. In such cases you will usually have to resort to phonetic spelling. It takes a bit of experimenting to relate these pitch contours to speech as it is something one does unconsciously as one speaks.

There is a second independent set of pitch controls which allow the voice box to speak in one of four registers.

Try this:

#0 HELLO #1 HELLO #2 HELLO #3 HELLO

These controls cause a jump from one register to the next rather than a smooth glide.

In addition to controlling pitch to emphasize a syllable you should also lengthen it by selecting a longer phoneme. You might also shorten the unstressed vowels in a word.

## **Entering words in the dictionary**

If you include an equals character, (=), anywhere in a string to be spoken, then the characters to the left of the equals will be translated into phonemes, and those on the right will be the entry as it will appear in the dictionary. This will usually be the correct English spelling but it need not be. For instance:

THIS IS A COMPLETE SENTENCE =Q1

If the dictionary already had an entry, Q1, then it would be overwritten.

The entry can be any printable character whether upper case, lower case or graphic. The dictionaries supplied wth the VOICE BOX only use upper case.

## **Deleting an entry**

An entry will be entirely removed if the left half of the equation has no characters or spaces.

## **Prefixes and Suffixes**

If you want to enter a word fragment that only applies when it occurs at the beginning of a word then you should include a space immediately after the equals. e.g.:

AEINTE = ANTI

For suffixes one must use the underline character instead of a space. e.g.:

IIZM =ISM\_

One should use prefix definitions carefully since exceptions to them must also be entered with leading spaces.

## **Do you really want to do this?**

At some point the program may query a definition. It does this when you are about to make a change that may be irreversible. Unless you confirm the change by typing Y the entry will be aborted.

## **Loading and saving dictionaries**

The command \*GD will start the process of getting a dictionary from the disk. It first looks in the disk directory for entries with the extender '.DIC' It then prints these out, (without the extender) so that you may choose one. The dictionary PHPLUS is normally loaded automatically with the program.

The \*SD command prepares to record a dictionary from the computer's memory onto the disk. It causes the names of existing dictionaries to be displayed so that you can choose a new name. The name must conform to Atari DOS conventions— eight characters or less, the first being a letter. If you enter the name of one that already exists, then it will be overwritten unless it is locked. In any case there must be no write protect tab on the disk.

## **Listing a dictionary**

The command \*LD lists out the text half of the dictionary. If it is a very large dictionary you may want to interrupt the listing by pressing CTRL and 1.

The entries are printed out with the longest ones first, in the reverse order in which they were entered.

If you want to see the phonetic spelling which a particular entry represents, then you must type in that entry, and on a new line, enter command: \*PP.

## **Memory full**

If your machine has no more than 32k of RAM you may get this message when you have made many additions to the dictionary. It means that the space allocated to the dictionary has all been used. The variable MXD sets the dimension of the dictionary storage string DIC\$. It is set in line 90 to 2000. You can raise this value by 1260 if you will not be using the random sentences, and by 7000 if you will not be using the face. To make this change, you should first save the dictionary and then stop the program with the BREAK key. Then LIST line 90, and alter the 2000 to a higher value. You may then RUN the program again.

## **Speak faster or slower**

The commands \*+ and \*- control the length of the pauses between words. Speech sounds most natural with no pauses, but a pause makes it slightly more intelligible. Each time you enter a \*- command pauses will be increased by one twentieth of a second. The figure thus accumulated is stored along with the dictionary. You can at any time use the command \*U to see how much room is left in the dictionary. Note that you are only allowed 255 words of any one length.

## **Random sentences**

This little sub-program constructs simple declarative sentences from a limited list of words. You can add to or change the list, and save it on the disk.

After typing \*R, you will be in another part of the program where new commands apply. You will first be asked if you want the standard words or the words you saved last time. If there was no last time, you must of course take the standard words, (type S). You will then be presented with a new menu which tells how to generate a random sentence, edit the list of words used in the sentences, or save the list on disk.

The easiest thing to do is simply to hit RETURN. This produces a new sentence.

The single letter command 'R' repeats the last sentence.

## **Changing the words**

After you have heard a few random sentences you may tire of Suzie's adventures with her ham sandwich. You could then change the list of words. The words are divided into nine classes. Suzy is in the group of subject pronouns like 'he' and 'she.' to see that list you should type:

PNS

Five words will appear. To get at Suzy you would have to move the cursor up and to the right, (check page 13 of the Atari Basic Reference manual for cursor moves). You could then type a new name over her, or use the control and delete keys to expunge her. In any case you should be sure to leave the words separated by commas. You are allowed up to three lines of words. When you have finished with the list, hit RETURN. This will print it out again. Hit RETURN again, without moving the cursor, and the system will be ready to make a new sentence which may incorporate your new words.

You can save the new list of random words on the disk by typing:

S

If the VOICE BOX did not pronounce your new words correctly you might want to go back to the phonetic spelling program and enter an improved pronunciation in the dictionary. The command \*M will take you there.

## **The talking face**

The command \*F will produce the animated face. It will take a few seconds to appear the first time as it must be loaded from the disk.

\*M will restore a normal screen of text.

## **Re-drawing the face**

If you type \*CF a small program will be loaded which allows you to make changes to the face and mouth.

A small blinking cursor should appear in the middle of the mouth. You can move this to any part of the left half of the screen with the usual cursor control keys and the CTRL key. You can plot a point and move the cursor by hitting the cursor keys by themselves. You would erase a point by holding the SHIFT key instead of CTRL.

As you draw on the left half of the screen the same details will be mirrored on the right. Sometimes the changes will not show on the right until you move the cursor up or down.

## **The mouth**

There are eight distinct mouth shapes. Each phoneme is assigned one of them. 'E' for instance always produces mouth shape 3. You can display the different mouth shapes by typing a number from 0 to 7. Each mouth shape occupies a rectangular area of sixty-four dots horizontally by twenty-four dots vertically. If you want to add a feature—a moustache perhaps—within this area, then you must add it to each of the eight mouths.

The eyebrows work in a similar way except that they occupy a rectangle of sixty-four by eight dots.

When you have made some changes which you want to see in action, you should hit RETURN. This reloads the speaking program. It will also ask you if you want to save the new face and new mouths on disk. If you do, you should respond with Y to each question. The old face and mouth files on the disk will then be overwritten. If you are not sure you want to do this then you should hit RETURN. Your artwork will remain in the computer's memory until you leave the speaking program. You will have another opportunity to save them if you reenter the Face Changer program.

## **The spelling program**

The command \*SP takes you to a new program which speaks words and challenges you to spell them. Before it does this, it asks if you want to save the dictionary. If you do, then you should type Y and then give the name of the dictionary.

The Spelling Program, written by Ron Kramer, first asks if you want to use the twenty-odd words already programmed, or if you want to add new words. If you want to enter new words, type Y. You can enter up to three lines. You should use English spelling, and put commas between words. After you hit RETURN you will have a chance to enter some more. Make a note of the words you have entered as you will probably need to use the speaking program to put them in the pronouncing dictionary used by the spelling program. This dictionary is called SPELL.

The Spelling Program goes through ten words at a time starting with any you might have entered. After each ten you can stop. If you have added some words you will have a chance to save them. They are incorporated as program data statements starting at line 12000, and the method of storing them is to save the whole program.

## Music

If you enter the \*SNG command you will be taken to the singing program which will immediately show 'MAIN MENU' and a palpitating cursor. If you are not sure what to do, type 4. This lists the songs that have been recorded at the factory. Enter the name of one that takes your fancy, and then press START.

Most of the songs are quite short and have a vocal with three voice accompaniment. When you have listened to a few of them, it may occur to you that you could do better. This is almost certainly true. You should first however experiment with the MUSIC SUPERVISOR controls. This is a special kind of menu which controls the recording and playing of the music.

After you have played a song, select 6 to get to the MUSIC SUPERVISOR. Then hit RETURN seven times to move the cursor down to the line that controls tempo. Type 0 and then press START. This will cause the song to be replayed at the slowest tempo. One often uses this setting for recording.

You can stop the music at any time by hitting the RETURN key.

Your next experiment might be to add vibrato to the singing voice. Do this by holding the  $\ast$  key as the song is played. You can remove the vibrato by holding the  $=$  key instead. You can of course use these controls to add vibrato only to certain notes. The next time you replay the song you will find that the vibrato has been recorded.

Glissando is a little more subtle. To make it more obvious, change the glissando time control number to 9, the slowest. Then play the song but hold down the  $\pm$  key.

Pretty weepy huh? Replay it again, but this time use the  $\Box$  key to remove the glissando. The next thing to try might be re-recording the vocal part. When the cursor is on the top line, type R. This will change PLAY to RECORD, and the word VOCAL should appear on the next line down. Make sure that the tempo setting is the same as when the song came from the disk, and then press START. If you do nothing else, you will hear the accompaniment with no vocal. That was just practice. Now hit RETURN to end the recording and press START again, but this time hit the space bar in time with the music. You should hear the words coming out with the melody as recorded at the factory, but with the timing being controlled by you and the space bar. Hit RETURN to get back to the MUSIC SUPERVISOR, and try it again, but now try using two fingers to work the  $\Box$  and  $\Box$  keys instead of the space bar. This allows you to play more smoothly—without adding rests between the notes.

Hit RETURN at the end of the song.

All of this is being recorded (and may be used as evidence against you). You can change RECORD to PLAY by typing P to hear what you have done.

The next thing to try, still in the RECORD mode is keying in new notes. To do this, you use the keyboard in an unconventional way. The bottom two rows respond as if they were part of a piano:

|       |          |          |          |          |          |          |         |                  |
|-------|----------|----------|----------|----------|----------|----------|---------|------------------|
| KEY:  | S<br>C#1 | D<br>D#1 | G<br>F#1 | H<br>G#1 | J<br>A#1 | L<br>C#2 | ;       | D#2              |
| NOTE: | Z<br>C1  | X<br>D1  | C<br>E1  | V<br>F1  | B<br>G1  | N<br>A1  | M<br>B1 | C2<br>/ E2<br>F2 |

The range is 18 semitones, from C1 to F2.

You will probably find it quite hard at first to relate the keys to musical notes. It is a great help to stick small paper labels on the front of certain keys: S D G H J L; these keys correspond to the black notes on a piano.

After you press START you can try keying in a new tune. The tune must have precisely the same number of notes as there are words. If you play more notes than there are words what will come out will be any old rubbish that was lying around in the word buffer. Remember that it is not necessary to play the notes in time as you can always re-time them on another pass using the  and  keys.

The next step is recording the accompanying voices. To do this, you change PLAY to RECORD and on the next line type 1, 2 or 3. Leave the next line showing TUNE, and on the lines below, set the volume of the voice you are recording to its maximum value of 7, the better to hear what you are playing. After you press START you can use the bottom two rows to play a new melody or use the space bar or the  and  keys to retime it.

The range of pitch is eighteen semitones. If you hold the SHIFT key while playing, the pitch will be raised by an octave, and if you use the CTRL key it will be raised by two octaves. These octave shifts only work on the non-vocal voices.

### Recording expression

The third line of the music supervisor allows you to record TUNE or EXPRESSION. The latter is the mode which allows you to add accents and tremolo to a non-vocal voice that has previously been recorded. If an accent is added to a note its loudness will be increased. Tremolo is cyclic modulation of the loudness. The  and  keys add and remove accents, and the  and  keys add and remove tremolo.

### Entering a new song

All the pre-recorded songs were entered using pure phonetic codes, using the PHONETIC dictionary, which is the one that is automatically loaded with the singing program. If you want to enter the words of your own song you should become familiar with the phonetic spelling system using the speaking program.

This is what you should do to enter a new song:

1. Press OPTION  
This gets you to the MAIN MENU.
2. Press 1  
This clears the song memory
3. Press 2  
This enters the song word editor, and should display some brief editing instructions.
4. Press CTRL  to move the cursor down to the second line from the top, where the words must start.

5. Type in the words of a song, putting a slash, (/), at the end of each note. E.G.:  
O / O / SAAY / KAEN / YU / SE /. (RETURN)
6. Press START  
You should now hear the keyboard clicking and a message should appear at the bottom of the screen titled: RECORDING VOCAL TUNE.
7. Play the following keys:  
B C Z   C B , (RETURN)  
This keys in the melody, and returns you to the WORD EDITOR.  
If you want to reproduce what you have just recorded then:
8. Press OPTION and then 6  
To get to the MUSIC SUPERVISOR.
9. Press P to switch to PLAY
10. Press START  
This will reproduce what you played, including any pause before you hit the first note.

### **Using a different dictionary**

Option 2 on the MAIN MENU allows you to load a different dictionary than the normal PHONETIC one. You may only do this if you have 40k or 48K of memory.

### **Using the word editor**

The WORD EDITOR, (option 2), provides a means of entering songs of up to 512 characters.

It divides a long song into paragraphs of 85 characters, about two and a quarter lines, each of which must be operated on as a unit. What this means is that you must hit RETURN before moving from one paragraph to another. This is similar to the way in which one edits an Atari Basic program, and indeed, all the usual screen editing controls can be used.

### **The Clicker**

This uses the keyboard speaker as a sort of metronome to help you keep in time. The usual range is from 24 to 96, the number actually representing the time in sixtieths of a second between clicks. It is best to make it a multiple of six or eight.

### **Glissando**

This feature, which can only be used on the vocal, makes the pitch glide from one note to the next. You can add it in two ways. The first way, which needs greater skill, requires that you hold the CTRL key as you play a note in the RECORD VOCAL mode. The second method is to use the  key in the PLAY mode. You should stab the  key during the note preceding the one to which you intend to glide.

The GLISSANDO TIME setting in the music supervisor menu controls how long a sweep takes. This is independent of how many semitones are being swept through, but is scaled according to the tempo.

### **Vibrato**

Vibrato, which is a cyclic modulation of the vocal pitch, can also be added both in the RECORD VOCAL and the PLAY modes. The SHIFT key is used in RECORD, and the  key in PLAY.

### **Volume settings**

One can adjust the relative volume of the vocal and accompaniment with the music supervisor. The sum of the four volume control numbers should not exceed thirteen as this may produce a distorted sound.

### **Face or Text**

The bottom line of the MUSIC SUPERVISOR controls whether the words or the outline face will be displayed during a song.

### **Saving a song on disk**

Press OPTION then 5. This will list the names of songs already on the disk. You can then type in the name you are giving your song. It may have up to eight letters. If it is the same as an existing one, then that one will be over-written.

If you get an error number when you try to save a song into which you have put a lot of work, don't despair. This is what you do:

ERROR 144—Take off the write protect tab and type GOTO 20110

EROR 162. (Disk full) or ERROR 167 (File locked) or ERROR 169 (Directory full)—Insert a formatted disk and type GOTO 20110.

You might encounter an ERROR 170 (File not found) when loading a song, if the name you typed did not correspond exactly with one that was on the disk. In that case you could simply restart the program by typing RUN. A way to prevent this from happening is to use the cursor controls to move up to the line with the song's name and then to hit RETURN.

### **Adding speech to your own Atari Basic programs**

There are two Basic programs which may be merged with your own to add speech. The simpler one, PHSPK.BLS does not have any animation. It uses the phonetic dictionary only, and it only recognizes the stepwise intonation, (#0, #1, #2, #3). It has the advantage however, that it does not require the presence of any other files on the disk when it is run.

The program to which it is to be added must be modified in three simple ways:

1. A statement must be executed once near the beginning of the program:

10 GOSUB 22222

2. At each place in the program where you want the VOICE BOX to speak you should have a statement such as:

100 AX\$ = "AHY KAEN TAWK": GOSUB SPEAK

Note that speech must be written in phonetic code.

3. You must merge the ALIEN program with your own. It occupies lines 22222 to 22252 which your program may not use.

Merge it into your program by typing:

ENTER "D:PHSPK.BLS"

### **Example of a very simple program using PHSPK.BLS**

What this trifling program does is to roll an imaginary dice and speak the result every time you hit RETURN.

—Turn on the power with the basic cartridge in place, the ALIEN disk in the drive, and the voicebox plugged in

—Type in these lines:

```
10 GOSUB 22222
20 PRINT "HIT RETURN FOR DICE ROLL"
30 INPUT AX$
40 AX$ = STR$(INT(6*RND(0)+1))
50 PRINT AX$
60 GOSUB SPEAK
70 GOTO 30
```

—Type: ENTER "D:PHSPK.BLS"

—Type: RUN

Every time you hit RETURN the VOICEBOX will announce a new answer.

If you want to SAVE the program you should first press RESET. This turns the VOICEBOX off.

### **Merging the fancy speech program with your own**

Another speaking program, SPK.BLS can also be merged with your own to add speech. It can use any dictionary, including one that you have developed, and can display the outline face.

When the composite program is run, certain other files must be waiting on the disk. These are:

- PHPLUS.DIC or another dictionary
- SPK40K.OBJ if your Atari has 40k or 48k
- SPK32K.OBJ if your Atari has only 32k

FACE and MOUTHS if you will be using the outline face.

This is what you do:

Use the O command of DOS to duplicate the files named above onto the disk that contains your program.

Type B (run Basic cartridge), and then LOAD your program.

Somewhere near the beginning of your program, where they will only be executed once, add the lines:

```
10 GOSUB 22222
20 AX$ = "PHPLUS": GOSUB DICLOAD
```

If you are using a different dictionary, then its name, (without the .DIC extender), would replace PHPLUS.

At each point in your program where speech is required, you should add a line such as:

```
100 AX$ = "I CAN TALK": GOSUB SPEAK
```

At any point in your program where you want the face to appear, add this statement:

```
200 GOSUB FACE
```

The first appearance of the face will take several seconds.

The normal text mode can at any time be restored by:

```
300 GOSUB NOFACE
```

If you will be making accesses to the disk, these must be preceded by the statement:

400 GOSUB OFF

Before running the program you should type:

ENTER "D:SPK.BLS"

This merges in the speaking program.

### Possible problems

SPK.BLS uses lines 22222 to 22362. If your program overlaps these, then one or the other must be changed.

Here is a complete list of the variables used by SPK.BLS.

AX\$ BLOAD BYTES CMD DIC\$ DICLOAD ERR FACE FFF HIGH ICBH  
ICBAL ICBLH ICBLL ICCOM ICSTA IOCBL IOCBLX LOW MXD NOFACE  
OB\$ OFF ORG SPEAK SPLIT STADR X0 X1 XX

You should ensure that none of these is used by your program.

### Memory limit

The SPK.BLS program puts its machine language part in a 4096 byte protected area at the top of memory. The amount of memory available for your program depends on the size of the dictionary you select, and whether or not you display the face. If, for example, you have a 40k or 48k system, and you use the PHPLUS dictionary and the face, you will have about 18000 bytes free for your Basic program. If you don't use the face, you will have more than 25000 bytes.

### Adding music to your program

Another program, SNG.BLS is provided which may be merged with your own basic program to add singing with accompaniment. It can replay songs from the disk, including any you have recorded, and gives you a choice of the outline face or another face which is more realistic. It can hold one song in memory at any time.

The procedure for using it is as follows:

1. Load your own program, which must not use lines 21946 to 22350
2. With the ALIEN disk in the drive, type:

ENTER "D:SNG.BLS"

3. Add this line near the beginning of your program where it will only be done once:

10 GOSUB 22222

4. At a point in your program where you want the song to be loaded add a line:  
20 AX\$ = "WABASH": GOSUB GTSNG

—where WABASH is the name of a song.

5. At the point where you want the song performed add a line:

100 GOSUB SING

6. If you want the screen to show the natural face ("Jerry"), then:

200 GOSUB JERRY

If you prefer the outline face, then:

300 GOSUB FACE

Either face will persist until it is removed by:

400 GOSUB NOFACE

—which will restore graphics mode 0.

The "Jerry" face disappears temporarily when a disk access is made.

When you run the program, the ALIEN disk should be in the drive. Alternatively, you can use the DOS duplicate file facility to move the following files onto your disk:

SNG40K.OBJ—if your machine has 40k or 48k.

SNG32K.OBJ—if your machine has only 32k.

FACE and MOUTHS—if you will be using the outline face.

PHONETIC.DIC—in any case.

JWMTHS and FACE1.FNT and FACE2.FNT—if you will be using the “Jerry” face

WABASH.TUN and WABASH.WDS—or whatever songs you choose.

Here is an example of a program which may be merged by typing: ENTER “D:SNG.BLS”. It performs three little songs, the first using the outline face, the second using Jerry and printing the song title and the third showing the words.

```
10 GOSUB 22222
20 AX$ = "WABASH": GOSUB GTSNG
30 GOSUB FACE: GOSUB SING
40 AX$ = "WOMAN": GOSUB GTSNG
50 GOSUB JERRY
60 GOSUB JPRINT
70 POSITION 17, 21: PRINT "WOMAN"
80 GOSUB SING
90 GOSUB NOFACE
100 AX$ = "HOME": GOSUB GTSNG
110 PRINT WX$: GOSUB SING: END
```

The GOSUB JPRINT in line 60 clears the four lines at the bottom of the screen.

If you will not be using the Jerry face then lines 21946 to 22150 may be discarded. This would greatly reduce the bulk of the program. A convenient way to do this is to type the command:

LIST “D:SNGF.BSL”, 22158, 22350

This creates a new file which you would use instead of SNG.BLS.

#### Appendix—Files on the disk

|              |   |
|--------------|---|
| DOS SYS      | Atari DOS 2.0S  |
| DUP SYS      |   |
| PHONETIC DIC | pronouncing dictionary with VOTRAX phonemes                       |
| PHPLUS DIC   | extension of PHONETIC.DIC including rules to pronounce many words |
| SPELL DIC    | pronouncing dictionary used by spelling program                   |
| SPK BAS      | main speaking program. Used for adding to dictionaries.           |
| DFWORDS      | words used by random sentence generator.                          |
| UWORDS       | users file of random words.                                       |

|             |  |
|-------------|--|
| FED OBJ     | machine program for redrawing outline face. Used by SPK.BAS and VBSING.                  |
| FACE        | graphics mode 8 face outline.  |
| MOUTHS      | moving parts of outline face.  |
| FACE1 FNT   | first special character set for 'Jerry' face   |
| FACE2 FNT   | second special character set for 'Jerry' face  |
| JWMTHS      | moving parts of 'Jerry' face   |
| VBSING      | program for recording songs  |
| SNG OBJ     | machine program used by VBSING   |
| PHSPK BLS   | basic program that may be used to add phonetically spelt speech to another Basic program |
| SPELL       | spelling quiz program, submitted by Ron Kramer.  |
| SPK BLS     | basic program for adding unrestricted speech to other Basic programs                     |
| SPK40K OBJ  | machine program used by SPK.BLS on 40k or 48k machines                                   |
| SPK32K OBJ  | ditto for 32k.   |
| SNG BLS     | basic program for performing songs. Lines must be added to select the song and the face  |
| SNG40K OBJ  | machine program used by SNG.BLS (40k or 48k)   |
| SNG32K OBJ  | machine program used by SNG.BLS (32k).   |
| AUTORUN SYS | automatic startup program  |
| MESSAGE     | program loaded by AUTORUN.SYS which in turn runs SPK.BAS                                 |

Files with the extender TUN and WDS are the songs programmed at the factory. The voice box disk has a self booting demonstration. All files are identical to those of the same name on the alien disk, except MESSAGE which runs DEMO.BAS. Additional files are:

|              |   |
|--------------|---|
| DEMO.BAS     | basic program constructed with SPK.BLS that speaks the ALIEN propaganda.            |
| DEMO.DIC     | pronouncing dictionary used by DEMO.BAS. Whole sentences are stored as Q1, Q2, etc. |
| SINGDEMO.BAS | basic program constructed with SNG.BLS that sings a selection of songs.             |



**Appendix—Phoneme List**

| <b>Phoneme<br/>Symbol</b> | <b>Example</b> | <b>Time<br/>(mS)</b> | <b>Hex-<br/>Code</b> | <b>Mouth<br/>Shape</b> |
|---------------------------|----------------|----------------------|----------------------|------------------------|
| A                         | DAY            | 185                  | 20                   | 0                      |
| A1                        | MADE           | 103                  | 06                   | 0                      |
| A2                        | ENABLE         | 71                   | 05                   | 0                      |
| AE                        | DAD            | 185                  | 2E                   | 1                      |
| AE1                       | AFTER          | 103                  | 2F                   | 1                      |
| AH                        | MQP            | 250                  | 24                   | 1                      |
| AH1                       | FATHER         | 146                  | 15                   | 1                      |
| AH2                       | HONEST         | 71                   | 08                   | 1                      |
| AW                        | CALL           | 250                  | 3D                   | 1                      |
| AW1                       | LAWFUL         | 146                  | 13                   | 1                      |
| AW2                       | SALTY          | 90                   | 30                   | 1                      |
| AY                        | DAY            | 65                   | 21                   | 3                      |
| B                         | BAG            | 71                   | OE                   | 4                      |
| CH                        | CHIP           | 71                   | 10                   | 7                      |
| D                         | PAID           | 55                   | 1E                   | 7                      |
| DT                        | BUTTER         | 46                   | 04                   | 7                      |
| E                         | MEET           | 185                  | 2C                   | 3                      |
| E1                        | BE             | 121                  | 3C                   | 3                      |
| EH                        | GET            | 185                  | 3B                   | 0                      |
| EH1                       | HEAVY          | 121                  | 02                   | 0                      |
| EH2                       | ENLIST         | 71                   | 01                   | 0                      |
| EH3                       | JACKET         | 59                   | 00                   | 0                      |
| ER                        | BIRD           | 146                  | 3A                   | 0                      |
| F                         | FAST           | 103                  | 1D                   | 6                      |
| G                         | GET            | 71                   | 1C                   | 7                      |
| H                         | HELLO          | 71                   | 1B                   | 7                      |
| I                         | PIN            | 185                  | 27                   | 0                      |
| II                        | INHIBIT        | 121                  | 0B                   | 0                      |
| I2                        | INHIBIT        | 80                   | 0A                   | 0                      |
| I3                        | INHIBIT        | 55                   | 09                   | 0                      |
| IU                        | YOU            | 59                   | 36                   | 2                      |
| J                         | JUDGE          | 47                   | 1A                   | 7                      |
| K                         | TRICK          | 80                   | 19                   | 7                      |
| L                         | LAND           | 103                  | 18                   | 7                      |
| M                         | MAT            | 103                  | 0C                   | 4                      |
| N                         | SUN            | 80                   | CD                   | 7                      |
| NG                        | THING          | 121                  | 14                   | 7                      |

### Appendix—Phoneme List (cont'd)

| Phoneme<br>Symbol | Example  | Time<br>(mS) | Hex-<br>Code | Mouth<br>Shape |
|-------------------|----------|--------------|--------------|----------------|
| O                 | MORE     | 185          | 26           | 5              |
| O1                | ABOARD   | 121          | 35           | 5              |
| O2                | FOR      | 80           | 34           | 5              |
| OO                | BOOK     | 185          | 17           | 2              |
| OO1               | LOOKING  | 103          | 16           | 2              |
| P                 | PAST     | 103          | 25           | 4              |
| PA0 or.           | no sound | 47           | 03           | 7              |
| PA1               | no sound | 185          | 3E           | 7              |
| R                 | RED      | 90           | 2B           | 7              |
| S                 | PASS     | 90           | 1F           | 7              |
| SH                | SHOP     | 121          | 11           | 7              |
| &&                | no sound | 47           | 3F           | 7              |
| T                 | TAP      | 71           | 2A           | 7              |
| TH                | THIN     | 71           | 39           | 6              |
| THV               | THE      | 80           | 38           | 6              |
| U                 | MOVE     | 185          | 28           | 2              |
| U1                | YOU      | 90           | 37           | 2              |
| UH                | CUP      | 185          | 33           | 1              |
| UH1               | UNCLE    | 103          | 32           | 1              |
| UH2               | ABOUT    | 71           | 31           | 1              |
| UH3               | MISSION  | 47           | 23           | 1              |
| V                 | VAN      | 71           | OF           | 6              |
| W                 | WIN      | 80           | 2D           | 5              |
| Y                 | ANY      | 103          | 29           | 3              |
| Y1                | YARD     | 80           | 22           | 3              |
| Z                 | ZOO      | 71           | 12           | 7              |
| ZH                | AZURE    | 90           | 07           | 7              |

### DIPHTHONGS

|            |       |            |       |
|------------|-------|------------|-------|
| A1-AY-Y    | GAME  | UH3-AH2-U1 | HOUSE |
| AH1-EH3-Y  | TIME  | 01-U1      | NOTE  |
| UH3-AH2-Y  | FIGHT | 01-UH3-Y   | TOY   |
| AH1-UH3-U1 | COW   | Y1-IU-U1   | MUSIC |

J should generally be DJ, and CH should be TCH.



## **ADDENDA TO VOICE BOX II INSTRUCTIONS**

The disks, marked '25 March 1983', supplied with the VOICE BOX II incorporate some changes and improvements:

1. The programs now work only on systems with 40K or 48K of RAM.
2. The Speaking and Singing programs can both use the human face.
3. The Spelling Quiz program, together with four other games submitted by VOICE BOX users, have been put on a separate disk.
4. A Basic subroutine, called NUMB.BLS, written by Scott Matthews, has been included. It can be merged into other programs to speak numbers.
5. An assembly language program, VBM.ASM, has been added. This allows game designers and others to use the VOICE BOX in machine code programs. It is in the LIST format used by the Atari Editor-Assembler cartridge.
6. Improvements in the handling of disk errors have been made.

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## INSTRUCTIONS FOR THE GAMES

### ACEY-DUCEY, by John Wilson

Acey Ducey is a card game in which two cards are laid down and a bet is made on the third card. To win, the third card must be in-between the first two. Aces are played high except if drawn first, in which case the player may choose to have them low. The deck of fifty-two cards is shuffled so that the same card will not come up twice.

### CONCENTRATION, by John Wilson

Concentration is a game for two players, each with a joystick. An array of thirty-six squares conceals a variety of shapes. Each player tries to find matched pairs.

### POKER, by Jerry White

This game has two variations called STUD and BID. In each game the player can see all the cards except for one of the computer's. All bids are entered with the keyboard.

### GREEN GOBLINS, by John Wilson

You have been selected by the High Counsel of Gnomes to retrieve the mystical bags of gold, stolen by The Master Goblin and his mindless servants.

At the start of each game, you enter the castle from the door on the left. A move of the joystick in any direction begins the game. You may pause a game by hitting the space bar at any time. Move the joystick to resume play.

Moving your gnome is done by pushing the joystick in the direction you want to go. To shoot your GOBLIN BLASTER, push the joystick in the direction you want to shoot, then press the TRIGGER button. Be warned you only have NINE shots in each room, after all they're only for self-defense! Try to gather all the bags of gold in each room to receive the bonus points. By earning a sufficient number of bonus points, an extra gnome is awarded to you.

Your entrance to the castle has not gone undetected! Even now the Master Goblin has sent orders to his servants to eat you. But you are swift on your feet and can easily outrun them if you must. But beware—the Master Goblin himself has joined the chase. If he succeeds in catching you, the life will be crushed from your frail body and the game will be over!

While travelling through the corridors you may encounter a life-giving object called an ANCA. Picking this up grants you one gnome. Also, you may stumble into the treasure room which has more bags of gold in it than even the best gnome can collect!

One last bit of advice: Be swift, be cautious, be greedy, BUT DON'T GET CAUGHT HOLDING THE BAG!!!!

## SPEAKING NUMBERS Subroutine, by Scott Matthews

This program converts a number into its verbal form in phonetic spelling. It is in the form of a subroutine that can be merged into a Basic program.

You would use it if you wanted a number, for example 123.4, to come out as "one hundred and twenty-three point four". Numbers may be positive or negative, but must have less than ten digits.

It occupies lines 22400 to 22736.

It used seven strings: XNA\$, XNH\$, XNT\$, XNM\$, XNE\$, XND\$, XNS\$; and the single letter variables: N, X, I, A, V, Z, O, U, B. You can use the variables in the rest of the program but they will be changed when the subroutine is used.

To merge the subroutine into your Basic program, type:

ENTER "D:NUMB.BLS"

At any point in your program where you want a number, N, to be converted to its phonetically spoken form, (returned in XNS\$), add the line:

100 N = 123:GOSUB 22400

To illustrate the use of NUMB, here is a little program that asks you to type a number, and then speaks, "The number you just typed was \_ \_ \_", speaking the number.

```
10 GOSUB 22222
20 GRAPHICS 0: PRINT "TYPE IN A NUMBER"
30 INPUT N
40 GOSUB 22400
50 AX$ = "THVUH3 NUHMBER YU DJUHST TAH2YPT WAHZ":
    GOSUB SPEAK
60 AX$ = XNS$: GOSUB SPEAK
70 GOTO 20
```

\*Type in the above program.

\*With the Speaking, Spelling, Singing disk in the drive, type:  
ENTER "D:PHSPK.BLS"

\*Type:  
ENTER "D:NUMB.BLS"

\*Type:  
RUN

\*Follow the prompts.

